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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/075,332	02/14/2002	Paul A. Kline	CRNT-0068-US	8699
64713	7590	11/03/2006		
CAPITAL LEGAL GROUP, LLC 5323 POOKS HILL ROAD BETHESDA, MD 20814			EXAMINER GOINS, DAVETTA WOODS	
			ART UNIT	PAPER NUMBER
			2612	

DATE MAILED: 11/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/075,332	Applicant(s) KLINE ET AL	
	Examiner Davetta W. Goins	Art Unit 2632	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-91 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-91 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>4/02, 6/02, 7/02, 8/02, 4/03</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-20, 23-29, 31-38, 40-43, 45-51, 54-59, 61, 62, 64, 66-71, 74-76 and 80-91 are rejected under 35 U.S.C. 102(e) as being anticipated by Wiesman et al. US Application 2001/0052843 A1 (Allowed 6/26/06).

In reference to claims 1, 3, 10, 29, 40, 45, 48, 58, 64, 74, 80, 90, 91, Wiesman discloses the claimed method for communicating data over a power line, comprising: receiving a signal from a first portion of the power line via a connection to the power line; converting at least a portion of the signal to a non-electrically conducting signal; and communicating the non-electrically conducting signal to a non-electrically conductive communication path, which is met by communications device 48 is comprised of communications core element 50 and a plurality of windings 52 wound about core element 50 for non-invasively (non-electrically) transmitting communications from sensor 10 to a.c. powerline 12 by non-contacting transformer action. It is preferred, to use communications device 48 as a high frequency communication transmitter and to use the capacitor 37 of sensor 36 as a high frequency communications receiver, in addition to being used as a voltage sensor. Although either could be used to transmit or receive, or both.

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Thus, the non-invasive (non-electrically) coupling of communicating signals to and from a powerline according to this invention can generally be described as reactive coupling to encompass both capacitive and inductive coupling techniques (page 4, column 1).

In reference to claim 2, Wiesman discloses the claimed the signal comprises a data component and a power component, which is met by sensors 108-112 and voltage and current sensor 36 continuously sense various conditions in and about a.c. powerline 12 and provide microcontroller 106 with analog or digital signals representative of these sensed conditions. The signals provided by the sensors are converted to digital signals, if necessary, by microcontroller 106 which then generates communications data indicative of the sensed conditioned and that data is provided over line 118 to powerline carrier electronics 120, which encodes the data (page 4, column 2).

In reference to claims 4, 6, Wiesman discloses the claimed method of filtering the power component from the data component, which is met by capacitor 37 is interconnected by lines 114 and 115 to signal conditioner 116, which performs amplification and filtering of the sensed signal to match the input requirements of microcontroller 106 (page 4, column 2).

In reference to claim 5, Wiesman discloses the claimed method of filtering comprises inductively filtering the power component from the data component, which is met by current sensing is performed by inductor 43, which has induced therein a current proportional to the a.c. line current in powerline 12. The induced current is then provided to current pickup signal

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conditioner 117, which amplifies and filters the signal before providing it to microcontroller 106 (page 4, column 2).

In reference to claims 7, 85, Wiesman discloses the claimed method of filtering comprises digitally filtering the power component from the data component, which is met by microcontroller 106 performs analog-to-digital conversion of sensed conditions, manipulates and updates the memory locations which store previous sensed conditions, performs numerical operations such as determining a moving time average, etc., keeps track of the time for synchronization purposes, and controls the communications between modular core self-powered powerline sensor 10 and base station 126 (page 5, column 2).

In reference to claims 8, 24, 25, Wiesman discloses the claimed method of converting comprises converting the data component of the signal to a non-electrically conducting signal, which is met by communications device 48 is comprised of communications core element 50 and a plurality of windings 52 wound about core element 50 for non-invasively (non-electrically) transmitting communications from sensor 10 to a.c. powerline 12 by non-contacting transformer action (page 4, column 1).

In reference to claims 9, 36, 38, 70, 71, Wiesman discloses the claimed method of further preventing, substantially, the power component of the signal from communicating with the non-electrically conductive communication path, which is met by the windings may be connected in parallel. The a.c. power in powerline 12 induces a current in windings 24, 26 and 28 by non-contacting transformer action. A suitable ratio of windings is chosen such that a desired current

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will be induced in the windings when a.c. powerline 12 is energized. The number of turns in the windings determines the ratio between the current induced in the windings and the current in a.c. powerline 12 up to the point at which the core elements 18, 20 and 22 contain an induced flux density which is at or below their level of saturation. A typical number of windings for each core element is 75 for extracting sufficient power to operate sensor 10 with line currents as low as 20 amperes. By increasing the number of core elements or windings or both, sensor 10 can be made to extract more power and therefore operate with even lower a.c. line currents (page 3, column 1, last paragraph).

In reference to claims 11, 33, 37, 54, 59, 61, 62, Wiesman discloses the claimed method wherein the second portion of the power line carries a lower voltage than the first portion of the power line. Capacitor 37 is used to sense voltage capacitively coupled from a.c. powerline 12 which is proportional to the powerline 12 voltage and, as described below, as a receiver for capacitively coupling high frequency powerline communications from powerline 12. Because capacitor 37 is coaxially disposed about powerline 12 it tends to cancel the effects of power in powerlines other than powerline 12 which may be closely spaced to powerline 12 (page 3, col. 2, 2nd paragraph).

In reference to claims 12-20, 26-28, 31, 32, 34, 35, 41-43, 49-51, 55-57, 66-69, 81-84, Wiesman discloses the claimed non-electrically conducting signal is a light signal, which is met by on-powerline communications, such as RF, phone line modem, cable TV, cellular phone, infrared,

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fiber optic cable, microwave, or ultra-sonic communications could be utilized (page 4, column 1, 2nd to last paragraph).

In reference to claim 23, Wiesman discloses the claimed method of receiving the non-electrically conducting signal, which is met by the data transmitted from sensor 10 is received by remote base station 126. Base station 126 is interconnected to powerline 12 by means of direct electrical connections 127 and 128 connected to powerline 12' which is a part of the powerline distribution or transmission system and is typically either ground, neutral, or a powerline of a different phase than powerline 12' (page 5, column 1, last paragraph).

In reference to claims 46, 47, 75, 76, 86-89, Wiesman discloses the claimed communication interface device comprises a modem, which is met by transmitted data is provided to computer 132 through a standard powerline carrier modem 130 that matches the communications module of sensor 10. Base station 126 is also capable of transmitting data from computer 132 through powerline carrier modem 130 to a.c. powerline 12 (page 5, col. 1, last paragraph).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. Claims 21, 22, 30, 53, 63 and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wiesman et al. in view of Abraham (US Pat. 5,559,377).

In reference to claims 21, 22, 63, 65, although Wiesman does not specifically disclose the claimed method of demodulating the signal, he does disclose a plurality of sensors that provide an analog or digital signal to microcontroller 106 representative of the particular condition sensed in or about a.c. powerline 12. Abraham discloses a communications apparatus 10 shown is coupled to a pair of power-lines 12, and generally comprises first coupling means 14, first transmitter means 16, first receiver means 18, and first modulator/demodulator means 20 at a first location along the power-lines 12. The combination of transmitter means 16, receiver means 18 and modulator/demodulator means 20 comprise a first modem means 21 (col. 6, lines 55-67). Since Wiesman discloses a system that includes data signals that are transmitted in a digital signal over the power line, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teaching demodulating the signal, as disclosed by Abraham, as a means for further protecting the data that's being communicated from the transmitter to receiving unit.

In reference to claims 30, 53, Wiesman does not disclose the claimed coupling device comprises a tap. Abraham discloses a coupling means that allows for a power line transformer 14 and power line transformer 22 to be directly applied to the power line such that there is direct electrical communication (tapping) (Figure 6). Since Wiesman discloses a transformer device that is placed along the powerline for communicating data signals to a remote location, it

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would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teaching of including a tap), as disclosed by Abraham, for receiving some power for operating the communication device.

5. Claims 39, 52, 60, 72, 73, 77-79, are rejected under 35 U.S.C. 103(a) as being unpatentable over Wiesman et al. in view of Fernandes et al. (US Pat. 4,635,055).

In reference to claims 39, 52, 60, 72, 73, 77-79, Wiesman does not disclose the claimed power supply comprises a toroidally shaped coil having a magnetically permeable core for electrical coupling to the power line. Fernandes discloses a module 20 is generally C-shaped and has a generally toroidal cross section. Since it is well known in the art to use toroidally shaped coils, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teaching of a toroidal shaped coil attached to the power line, as disclosed by Fernandes, with the system of Wiesman, as a choice of ease of applying the housing to the power line.

6. Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wiesman et al.

In reference to claims 44, although Wiesman does not specifically disclose the claimed weather-tight housing containing at least a portion of the signal conversion device, it would have been obvious to one of ordinary skill in the art at the time of the invention to use a weather-tight housing that will protect the communication device.

7. The prior art of record and not relied upon is considered pertinent to the applicant's disclosure as follows. Wiesman (US Pat. 5,892,430), disclosing a power line communication system.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Davetta W. Goins whose telephone number is 571-272-2957. The examiner can normally be reached on Mon-Fri with every other Fri. off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel Wu can be reached on 571-272-2964. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



D.W.G.

June 23, 2006

Davetta W. Goins
Primary Examiner
Art Unit 2612